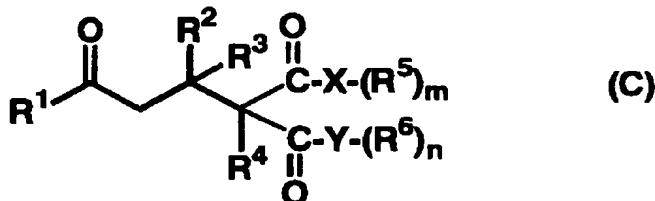


What is claimed is:

1. A process for producing an optically active compound represented by general formula (C)

[Chem. 3]

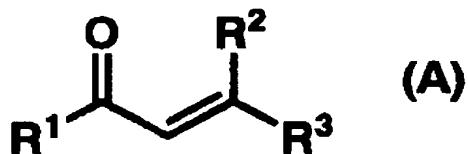


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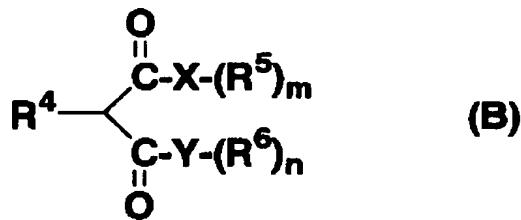
(in the formula, R¹ denotes an aromatic monocyclic or aromatic polycyclic hydrocarbon group, which may have a substituent, a saturated or unsaturated aliphatic hydrocarbon group or alicyclic hydrocarbon group, which may have a substituent, a heteromonocyclic or heteropolycyclic group, which may have a substituent, or a hydrogen atom, an alkoxy group, or an amino group; R² and R³ independently denote a hydrogen atom, an aromatic monocyclic or aromatic polycyclic hydrocarbon group, which may have a substituent, a saturated or unsaturated aliphatic hydrocarbon group or alicyclic hydrocarbon group, which may have a substituent, or a heteromonocyclic or heteropolycyclic group, which may have a substituent, and R¹ and R², R¹ and R³, or R² and R³ may be bonded to each other to form a ring; R⁴ denotes a hydrogen atom, an aromatic monocyclic or aromatic polycyclic hydrocarbon group, which may have a substituent, a saturated or unsaturated aliphatic hydrocarbon group or alicyclic hydrocarbon group, which may have a substituent, or a heteromonocyclic or heteropolycyclic group, which may have a substituent; R⁵ and R⁶ independently denote a hydrogen atom, an aromatic monocyclic or aromatic polycyclic hydrocarbon group, which may have a substituent, a saturated or unsaturated aliphatic hydrocarbon group or alicyclic hydrocarbon group, which may have

a substituent, or a straight-chain or branched C1 to C20 alkoxy group, and R⁴ and R⁵, R⁴ and R⁶, or R⁵ and R⁶ may be bonded to each other to form a ring; X and Y independently denote a single bond, an oxygen atom, a sulfur atom, a nitrogen atom, or a phosphorus atom; and m and n are independently 1 or 2; when X and/or Y is a single bond, an oxygen atom, or a sulfur atom, m and/or n is 1, and when X and/or Y is a nitrogen atom or a phosphorus atom, m and/or n is 2) by reacting a compound represented by general formula (A)

5 [Chem. 1]



(in the formula, R¹, R², and R³ have the same meaning as above) and a compound represented by general formula (B) [Chem. 2]



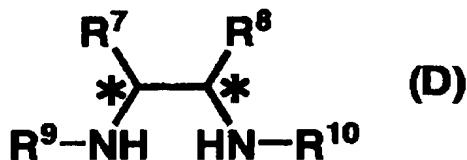
15 (in the formula, R⁴, R⁵, R⁶, X, Y, m, and n have the same meaning as above) with an asymmetric metal complex obtained from an optically active nitrogen-containing compound and a complex of a metal of group VIII of the periodic table.

2. The process for producing an optically active compound according to Claim 1, wherein X and Y of compound (B) according 20 to Claim 1 are both oxygen atoms.

3. The process for producing an optically active compound according to Claim 1, wherein X of compound (B) according to Claim 1 is an oxygen atom and Y is a single bond, or X is a single bond and Y is an oxygen atom.

4. The process for producing an optically active compound according to Claim 1, wherein the optically active nitrogen-containing compound has a structure represented by general formula (D)

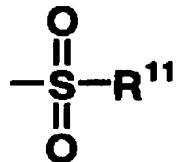
5 [Chem. 4]



(in the formula, R⁷ and R⁸ independently denote an aromatic monocyclic or aromatic polycyclic hydrocarbon group, which may have a substituent, a saturated or unsaturated aliphatic hydrocarbon group or alicyclic hydrocarbon group, which may have a substituent, or a heteromonocyclic or heteropolycyclic group, which may have a substituent, and R⁷ and R⁸ may be bonded to each other to form a ring; R⁹ denotes a hydrogen atom or an alkyl group; R¹⁰ denotes an acyl group, a carbamoyl group, a thioacyl group, a thiocarbamoyl group, an alkylsulfonyl group, or an arylsulfonyl group; and * denotes an asymmetric carbon atom).

5. The process for producing an optically active compound according to Claim 4, wherein in the optically active nitrogen-containing compound represented by general formula (D), R¹⁰ has a structure represented by

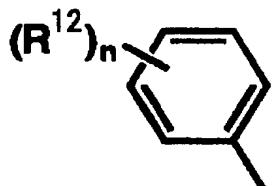
[Chem. 5]



(in the formula, R¹¹ denotes an alkyl group or aryl group, which may have a substituent).

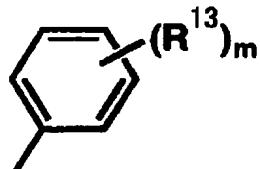
6. The process for producing an optically active compound according to Claim 4, wherein in the optically active nitrogen-containing compound represented by general formula (D), R⁷ has a structure represented by

5 [Chem. 6]



R⁸ has a structure represented by

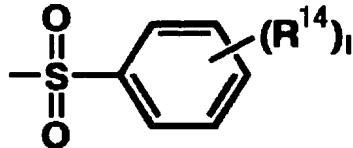
[Chem. 7]



10

and R¹⁰ has a structure represented by

[Chem. 8]



15 (in the formulae, R¹², R¹³ and R¹⁴ independently denote a hydrogen atom, an alkyl group, a halogen atom, or an alkoxy group, and l, m, and n independently denote an integer of 1 to 5).

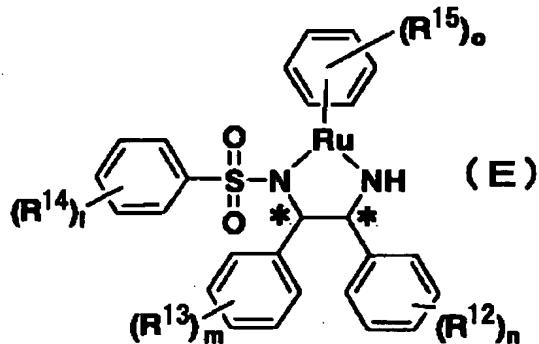
7. The process for producing an optically active compound according to any one of Claims 1 to 6, wherein the complex of a 20 metal of group VIII of the periodic table is a ruthenium compound.

8. The process for producing an optically active compound according to Claim 1, wherein the asymmetric metal complex is an

asymmetric ruthenium amido complex represented by general formula

(E)

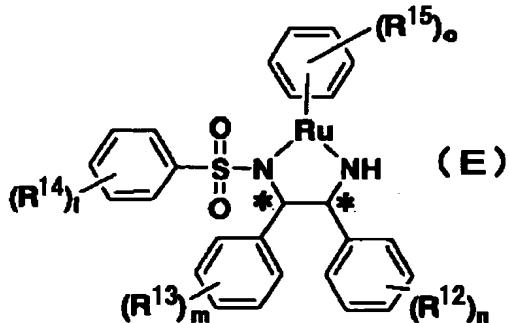
[Chem. 9]



5 (in the formula, R^{12} , R^{13} , R^{14} , l , m and n have the same meaning as above, R^{15} denotes a methyl group, an ethyl group, a propyl group, or an isopropyl group, o denotes an integer of 0 to 6, and * denotes an asymmetric carbon atom).

9. The process for producing an optically active compound
10 according to Claim 1, wherein the asymmetric metal complex is an asymmetric ruthenium hydrido complex represented by general formula (F)

[Chem. 10]



15 (in the formula, R^{12} , R^{13} , R^{14} , R^{15} , l , m , n and o have the same meaning as above, and * denotes an asymmetric carbon atom).